

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of the Commission's Rules with)	GN Docket No. 12-354
Regard to Commercial Operations in the 3550-)	
3650 MHz Band)	

**COMMENTS OF PCIA – THE WIRELESS INFRASTRUCTURE ASSOCIATION
AND THE DAS FORUM, A MEMBERSHIP SECTION OF PCIA**

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I. INTRODUCTION AND SUMMARY

PCIA – The Wireless Infrastructure Association and The DAS Forum, a membership section of PCIA (collectively, “PCIA”),¹ submit these reply comments in response to the above-captioned Notice of Proposed Rulemaking and Order (“*NPRM*”) seeking comment on service rules for the 3550-3650 MHz band (“3.5 GHz Band”).²

PCIA supports the Federal Communications Commission’s (“FCC” or “Commission”) initiative and proactive approach to secure additional spectrum to meet the escalating data needs of Americans. Distributed antenna systems (“DAS”) and small cell solutions, which provide targeted coverage to unserved or underserved areas and capacity to high-traffic areas, are being

¹ PCIA is the national trade association representing the wireless infrastructure industry. PCIA’s members develop, own, manage, and operate towers, rooftop wireless sites, and other facilities for the provision of all types of wireless, telecommunications, and broadcasting services. PCIA and its members partner with communities across the nation to effect solutions for wireless infrastructure deployment that are responsive to the unique sensitivities and concerns of each community. The DAS Forum is a broad-based PCIA membership section dedicated to the development of distributed antenna systems and other small cell technologies that make up the Heterogeneous Network (“HetNet”), which enables wireless broadband connectivity and added capacity throughout the nation.

² *In re* Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, *Notice of Proposed Rulemaking and Order*, 27 FCC Rcd 15,594 (2012) (“*NPRM*”).

more widely deployed to meet intense consumer demand.³ As AT&T noted, “small cell deployments in the 3.5 GHz Band could serve as a component of carriers’ heterogeneous access networks (“HetNets”), which employ mixtures of small cells, macrocells, and Wi-Fi infrastructure to maximize the efficient use of available spectrum.”⁴ Indeed, “Small cells are not just a hypothetical solution or a passing fad; it is a highly effective technology in which companies are investing substantial time and money. And companies are ready to deploy it *now*.”⁵

³ PRESIDENT’S COUNCIL OF ADVISORS ON SCI. & TECH., REALIZING THE FULL POTENTIAL OF GOVERNMENT-HELD SPECTRUM TO SPUR ECONOMIC GROWTH 17-20 (rel. July 20, 2012) (“PCAST Report”), *available at* http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast_spectrum_report_final_july_20_2012.pdf. A DAS network consists of three primary components: (i) a number of remote communications nodes (“DAS node(s)”), each including at least one antenna for the transmission and reception of a wireless service provider’s RF signals; (ii) a high capacity signal transport medium (typically fiber optic cable) connecting each DAS node back to a central communications hub site; and (iii) radio transceivers or other head-end equipment located at the hub site that propagates and/or converts, processes or controls the communications signals transmitted and received through the DAS nodes. Depending on the particular DAS network architecture and the environment in which it is deployed, DAS nodes may include equipment in addition to the antennas, *e.g.*, amplifiers, remote radio heads, signal converters, and power supplies. Historically, the term “small cell” has been used to refer to microcells, picocells/metrocells, and femtocells. There are certain similarities between DAS nodes and small cells. Like DAS nodes, small cells transmit at signal power levels that are much lower than macrocells and are physically much smaller. Both DAS and small cells may be deployed in indoor and outdoor environments.

⁴ Comments of AT&T, GN Docket No. 12-354, at 3 (filed Feb. 20, 2013) (“AT&T Comments”).

⁵ Comments of Microsoft Corp., GN Docket No. 12-354, at 7 (filed Feb. 20, 2013) (“Microsoft Comments”) (original emphasis). *See also* Comments of Alcatel-Lucent, GN Docket No. 12-354, at 2-3 (filed Feb. 20, 2013) (“Alcatel-Lucent Comments”) (“By adding small cells to their networks, carriers are supplementing existing macrocell deployments with cells closer to end users to permit greater “reuse” of scarce wireless frequencies. Small cells also are an excellent tool to fill in coverage gaps and offer the promise of assisting with offloading traffic from congested networks, rerouting traffic to landline networks.”); Comments of Qualcomm Inc., GN Docket No. 12-354, at 18 (filed Feb. 20, 2013) (“Qualcomm Comments”) (“[T]he deployment of small cells will provide a much better experience for the users served via macrocells and the users served via small cells. As shown in the Appendix to these Comments, network

PCIA urges the Commission to continue its important work in clearing spectrum for exclusive licensed commercial use. As the Commission prepares to open the 3.5 GHz Band to the public, it should proceed with caution in forming regulations so as not to stifle technological development in this evolving space. To facilitate this technologic growth and ensure spectrum is used to its full potential, the Commission should streamline its environmental and historic preservation regulations that inhibit deployment; while particularly relevant to the use of DAS and small cells in the 3.5 GHz Band, the FCC should recognize that relaxing these regulations will benefit other frequencies and wireless services.

As with any spectrum band, the Commission must truly recognize the unique aspects of both the 3.5 GHz spectrum and the technology—namely DAS and small cells—that will create the most value for the public and licensees. The Commission’s regulations must account for the revised propagation effects of small cells and the way such networks can be configured so as not to artificially inflate the size of the proposed exclusion zones. Likewise, the regulations must ensure that small cells in the 3.5 GHz Band may be used both indoors and out. Deploying DAS and small cells ubiquitously in the 3.5 GHz Band will be an important step in expanding broadband access, as it presents an excellent way to offload wireless traffic. Finally, the Commission should investigate a tiered access approach that could be fully effectuated by a competitive database services and coordination market.

densification with small cells can increase network capacity by 100 times, even where the transmit power for each small cell is as low as 13 dBm.”).

II. THE COMMISSION SHOULD PRIORITIZE THE AVAILABILITY OF CLEARED, LICENSED SPECTRUM

PCIA agrees with commenters that cleared spectrum for exclusive licensed use should remain a Commission priority for addressing network capacity issues.⁶ PCIA appreciates the Commission's willingness to explore new methods of increasing data capacity; however, the Commission must be wary of discouraging investment in newly available spectrum. As Ericsson states, "[E]xclusive-use spectrum is the lifeblood of today's mobile revolution, and therefore spectrum clearing should remain the priority policy for the Commission."⁷ PCIA agrees with AT&T that "[t]he fastest way to expedite mobile broadband deployment and to increase mobile speed and capacity is to identify, clear, and auction additional spectrum below 3 GHz for exclusive, licensed use."⁸ Congress has repeatedly demonstrated a preference for the reallocation of spectrum as recently as the passage of the Middle Class Tax Relief and Job Creation Act of 2012.⁹ As difficult as spectrum clearing may be, the FCC should continue its important work in

⁶ See Comments of CTIA – The Wireless Association, GN Docket No. 12-354, at 2 (filed Feb. 20, 2013) ("CTIA Comments") ("The sharing scenarios investigated here are not a substitute for cleared spectrum for mobile broadband."); Comments of the Consumer Electronics Association, GN Docket No. 12-354, at 10 (filed Feb. 20, 2013) ("CEA Comments") ("The Commission should not in any way substitute dynamic spectrum access in this band – no matter how promising in theory – for concrete actions that clear and reallocate desirable federal spectrum for exclusive commercial use."); Comments of Mobile Future, GN Docket No. 12-354, at 1 (filed Feb. 20, 2013) ("Mobile Future Comments") ("[W]hile the Commission moves forward with solutions in this band, it also should continue to explore additional avenues to make spectrum available on an exclusive basis to commercial operators to better enable them to respond to ever-increasing consumer demand. Clearing and reallocating spectrum for exclusive licensed use by commercial operators continues to hold the most promise for the deployment of mobile broadband networks.").

⁷ Comments of Ericsson, GN Docket No. 12-354, at 1 (filed Feb. 20, 2013) ("Ericsson Comments").

⁸ AT&T Comments at i, 2-4.

⁹ See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6701(a)(3), 126 Stat. 156 ("Spectrum Act"), *codified at* 47 U.S.C. 923(j) (directing NTIA, when evaluating

this area to ensure that today's *and* tomorrow's wireless users have the access and capacity to the frequencies necessary to work, play, and stay safe.

Finally, PCIA encourages the FCC to further examine T-Mobile's proposal for dedicating 50 MHz in the 3.5 GHz Band for licensed exclusive use.¹⁰ As discussed throughout this filing, the technology that would be used in this band tomorrow continues to develop. Many of the applications for use are still coming into focus. Additionally, the business case for investment in this band remains fluid. Understanding this, T-Mobile's proposition for exclusive licensed use of spectrum in the 3.5 GHz Band should be earnestly considered.

III. SMALL CELLS ARE WELL-SUITED FOR THE 3.5 GHZ BAND

The *NPRM* highlights how small cells pair well with the characteristics of the 3.5 GHz Band. PCIA agrees with the Commission that there is a practical role for small cells in the band. However, PCIA cautions that small cells are still an evolving technology, and it urges the Commission to refrain from over-regulating them during this critical, developmental period. At the same time, the FCC should remove existing regulatory barriers that have inadvertently hampered their deployment.

A. The FCC Should Exercise Caution in Regulating Rapidly Evolving Technologies

While small cells are being deployed today and stand ready to meet the demand of tomorrow, the technology is still evolving. Wireless providers continue to learn how small cells can remedy gaps in network coverage and capacity. Any regulatory framework affecting small cells should have enough flexibility to allow wireless providers to explore the full capabilities of

potential bands for reallocation to non-Federal use, to "give priority to options involving reallocation of the band for *exclusive* non-Federal use" (emphasis added)).

¹⁰ See Comments of T-Mobile USA, Inc., GN Docket No. 12-354, at 8 (filed Feb. 20, 2013) (proposing that the Commission "assign at least 50 megahertz of 3.5 GHz Band spectrum on an exclusive licensed basis").

the technology. PCIA joins with Alcatel-Lucent's as it "urges the Commission to not be overly prescriptive . . . [and] allow the market to unfold without placing undue restrictions on uses of the band and formulate rules that allow experimentation with multiple use cases."¹¹

Additionally, PCIA believes TIA's request for technology neutrality is appropriate because neutrality prevents regulation-specific engineering requirements that can stifle innovation.¹² Neutrality is also consistent with comments during the FCC's Workshop on the 3.5 GHz Notice of Proposed Rulemaking.¹³ As Microsoft states, "Industry is best positioned to understand the technical requirements that are necessary for spectrally effective 3.5 GHz small cells, and how to prevent that technology from interfering with incumbent users. Government-developed specifications would cause delays in deploying much-needed small cells."¹⁴ We urge the FCC to draw from its experience in promoting technology-neutral, market-driven policy as it forms the policies and regulations that drive 3.5 GHz Band adoption.¹⁵

¹¹ Alcatel-Lucent Comments at 3. *See also* Telecommunications Industry Association, GN Docket No. 12-354, at 8 (filed Feb. 20, 2013) ("TIA Comments") ("Yet the bands and operational models in which small cell technologies are most likely to develop continue to be a work in progress, and should be left to the market to decide. If small cell technologies are appropriate under an exclusive licensed regime, market participants will deploy them. Indeed, it may be most appropriate to deploy a mix of small cell and macro cell technologies in a band like 3.5 GHz, and that partitioning may be different for different regions or for different network operators. The Commission should not require small cells it should simply permit them.").

¹² TIA Comments at 8 ("The Commission must maintain its longstanding position in favor of technology neutrality, and must not create rules which inflexibly limit deployable technologies and/or various forms of sharing in the time, frequency, and spatial domains.").

¹³ *See 3.5 GHz Workshop*, FCC (Mar. 13, 2013), <http://www.fcc.gov/events/35-ghz-workshop> (providing the video archive and workshop presentations).

¹⁴ Microsoft Comments at 12.

¹⁵ *See, e.g., In re Promoting More Efficient use of Spectrum Through Dynamic Spectrum Use Technologies, Notice of Inquiry*, 25 FCC Rcd 16,632, ¶¶ 3-4 (2010) (discussing how the Commission's flexible policies led to "opportunities for new technologies," such as the 802.11 WiFi standards, femto-cells, and smart antennas).

B. The FCC Should Streamline Its NEPA and NHPA Regulatory Requirements to Speed Adoption and Deployment Throughout the Wireless Ecosystem

The FCC should examine ways in which it can streamline its National Environmental Policy Act (“NEPA”) and National Historic Preservation Act (“NHPA”) regulatory review requirements. In the *NPRM*, the Commission sought comment on whether to apply environmental review requirements to licensees in the 3.5 GHz Band.¹⁶ Additionally the FCC asked whether “tailoring or streamlining of the agency’s environmental requirements is appropriate in light of the physical characteristics of small cell facilities.”¹⁷ Let there be no mistake: streamlining in NEPA and NHPA regulatory requirements is not only a good idea, it is a necessary step in order to take advantage of the benefits outlined in the 3.5 GHz Band and every other band. Small cells by their nature may require dense deployments of multiple facilities to cover a broad area.¹⁸ Commenters note that “[t]he deployment of 3.5 GHz devices could be unreasonably delayed due to the sheer number of small cells that will be required for coverage and which would be subject to environmental compliance requirements.”¹⁹ Further, carriers have announced significant increases in the small cell deployment across their networks for spectrum re-use and offloading.²⁰ Subjecting these new, dense networks to cell-by-cell

¹⁶ *NPRM*, ¶ 143.

¹⁷ *Id.*

¹⁸ *Id.*, ¶ 20.

¹⁹ Comments of Utilities Telecom Council, Edison Electric Institute & National Rural Electric Cooperative Association, GN Docket No. 12-354, at 25 (filed Feb. 20, 2013) (“UTC Comments”).

²⁰ Press Release, AT&T, Inc., AT&T to Invest \$14 Billion to Significantly Expand Wireless and Wireline Broadband Networks, Support Future IP Data Growth and New Services (Nov. 7, 2012), <http://www.att.com/gen/press-room?pid=23506&cdvn=news&newsarticleid=35661&mapcode=corporate|consumer> (announcing a three-year plan to deploy of 40,000 small cells and 1,000 DAS).

environmental and historic preservation review will make deployment prohibitively slow and costly. Utilities agree that “environmental compliance requirements should be streamlined for 3.5 GHz small cell devices, because they are less likely to impact the environment or historic places compared to other antenna structures and the environmental compliance requirements could impose undue administrative burdens on the deployment of small cell devices.”²¹

In its March 19, 2013 letter, PCIA urged the FCC to issue a separate rulemaking to add DAS and small cell solutions to the list of facilities that are categorically excluded from non-RF-related environmental processing in Note 1 to 47 C.F.R. § 1.1306.²² The letter accompanied a report authored by Amos J. Loveday, Ph.d. that analyzed the impact of the FCC’s environmental and historic preservation framework on DAS and small cell solutions and offered potential solutions for streamlining the deployment of wireless facilities in the public rights-of-way.²³ While the letter goes into greater detail, a rulemaking would provide an open discussion of the benefits of such an exclusion, including facilitating wireless broadband deployment and reducing unnecessary burdens on industry, the FCC and State Historic Preservation Officers—all while maintaining environmental and historic preservation goals.²⁴

DAS and small cells are frequently deployed on utility poles and similar infrastructure within existing aerial corridors of prior or permitted use. A DAS installation, for example, has a

²¹ UTC Comments at 25.

²² Letter from D. Zachary Champ, Gov’t Affairs Counsel, PCIA – The Wireless Infrastructure Ass’n, to Marlene H. Dortch, Secretary, FCC (Mar. 19, 2013), *available at* <http://apps.fcc.gov/ecfs/document/view?id=7022132501>.

²³ AMOS J. LOVEDAY, DAS/SMALL CELLS & HISTORIC PRESERVATION: AN ANALYSIS OF THE IMPACT OF HISTORIC PRESERVATION RULES ON DISTRIBUTED ANTENNA SYSTEMS AND SMALL CELL DEPLOYMENT (Feb. 27, 2013) (“DAS/Small Cell Report”), *available at* <http://apps.fcc.gov/ecfs/document/view?id=7022132502>.

²⁴ *See id.* at 1-2, 5, 8.

series of small nodes connected with fiber optic or coaxial cables, usually along the public rights-of-way on utility poles.²⁵ The FCC recognizes that the deployment of these wireless facilities within the public rights-of-way is functionally equivalent to the deployment of wireline telecommunication facilities.²⁶ However, uncertainties surrounding the application of the FCC's historic preservation and environmental rules to these new technologies can overly complicate or thwart DAS and small cell deployment.²⁷

The benefits of a Note 1 exclusion are not limited to the 3.5 GHz band. Any such exclusion should cover all frequency bands. Therefore, while the FCC continues to work on 3.5 GHz Band, it should concurrently act through a separate rulemaking to benefit all small cells and ensure that the exemption is in place as the Commission ultimately finalizes rules in the 3.5 GHz Band.²⁸

C. Exclusion Zones Should Be Shrunk to Account for Limited Propagation of Small Cells

PCIA agrees with the Commission and other commenters that the previously proposed exclusion zones for the 3.5 GHz Band should be reevaluated and reduced. In order for the potential of the band to be realized there must be a demand for its use, and this starts with ensuring that the spectrum is available for use in major population centers. The use of small cells

²⁵ *Id.* at 1.

²⁶ See *In re Implementation of Section 224 of the Act; A National Broadband Plan for Our Future, Report and Order and Order on Reconsideration*, 26 FCC Rcd 5240, ¶¶ 1, 6 (2011) (reconciling disparate rental rates for utility poles between cable and telecommunications providers to encourage wireless broadband infrastructure investment, and “seek[ing] to eliminate unnecessary costs or burdens associated with pole attachments”).

²⁷ See DAS/Small Cell Report, at 2-5.

²⁸ See News Release, FCC Chairman Julius Genachowski Announces New Broadband Acceleration Initiative Actions (Jan. 25, 2013) (announcing, among other things, “actions in the coming months to further streamline DAS and small cell deployment”).

in this band will play a pivotal role in mitigating interference with incumbents while allowing access to other users.

Small cell solutions and their unique characteristics, including lower transmitting power, greater deployment density, and proximity to the end-users,²⁹ distinguish them from the macro-site model for 3.5 GHz used in the National Telecommunication and Information Administration's ("NTIA") Fast Track Report.³⁰ PCIA agrees with Motorola Solutions, Inc. that "[i]t is expected that 3.5 GHz deployments typically will have low antenna heights, resulting in high attenuations of the signal at significant distances (.200 m). Even for wider area outdoor systems, transmit powers would generally be limited to 1 W/MHz as opposed to higher powered commercial cellular system deployments."³¹

Further, Qualcomm notes that using NTIA's modeling parameters with modifications to account for small cells, the exclusion zones can be reduced.³² Importantly, Qualcomm also found that, "so long as the product of the small cell density and the small cell transmit power remain

²⁹ Comments of Nokia Siemens Networks US LLC, GN Docket No. 12-354, at 21-23 (filed Feb. 20, 2013) ("Nokia Comments").

³⁰ NTIA, AN ASSESSMENT OF THE NEAR-TERM VIABILITY OF ACCOMMODATING WIRELESS BROADBAND SYSTEMS IN THE 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, 4200-4220 MHz, AND 4380-4400 MHz BANDS (rel. October 2010) ("Fast Track Report"), *available at* http://www.ntia.doc.gov/files/ntia/publications/fasttrackevaluation_11152010.pdf. *See* Comments of Motorola Solutions, Inc., GN Docket No. 12-354, at 7 (filed Feb. 20, 2013) ("Motorola Comments") ("[T]he originally proposed exclusion zones for the 3.5 GHz band should be relaxed, due to the power transmitters and lower deployment densities than were originally studied."). *See also* CEA Comments at 9 ("The NPRM's small cell approach, with its lower transmitter power, should present far fewer interference concerns. Therefore the Commission should adopt its proposal to evaluate small cell sites usage of the spectrum, and provide appropriately-sized exclusion zones to protect incumbents."); AT&T Comments at ii ("[T]he size of such exclusion zones should be reconsidered in light of the small cell deployment scenarios and technical rules proposed in the notice.").

³¹ Motorola Comments at 7.

³² Qualcomm Comments at 17.

constant, increasing the densification of small cells will not increase the level of interference to ship borne radar systems.”³³ In addition to output levels and infrastructure position, advanced technical solutions in the creation and management of the 3.5 GHz Band database will also contribute to the reduction in the size of the exclusion zones.³⁴ In general, PCIA believes that “exclusion zones can be reduced in size and can be eliminated over time.”³⁵

PCIA further encourages the Commission to examine closely the exclusion zone calculation factors submitted by Nokia as well as the parameters submitted by Motorola.³⁶ The impact that their adjustments to the factors used in calculating the exclusion zones should be well understood before the exclusion zones themselves are set.

D. Small Cell Use in the 3.5 GHz Band Should Not be Limited to Indoor Use Only

Small cell use in the 3.5 GHz Band should not be limited to indoor use only as some commenters suggest.³⁷ Not only would indoor use prevent “utilities and other [critical infrastructure industries] from using the 3.5 GHz Band for most if not all of their potential smart grid and other applications, including emergency response communications,” it would

³³ *Id.*

³⁴ Motorola Comments at 7 (“Priority Access systems will be able to effectively deal with interference from radars in the field.”); Qualcomm Comments at 17-18 (“With regard to on-channel interference from a radar system into a small cell, based on this information available in the NTIA Fast Track Report regarding the radar systems, there is little protection within the exclusion zones, and Qualcomm recommends that the ASA framework be used to control when and where small cells can operate within the exclusion zones.”).

³⁵ Comments of Shared Spectrum Company, GN Docket No. 12-354, at 3 (filed Feb. 20, 2013).

³⁶ Nokia Comments at 22-23; Motorola Comments at 8 (proposing exclusion zones be variable based on actual parameters, such as “device class, transmit power level, antenna height, transmit mask, interference protection ratios, etc.”).

³⁷ See Comments of The Wireless Internet Service Providers Association, GN Docket No. 12-354, at 17-18 (filed Feb. 20, 2013) (proposing small cells in the 3.5 GHz Band be restricted to indoor use except when “short-range outdoor use” is necessary).

prematurely exclude applications for outdoor use that have not yet been developed.³⁸ Further, the advances in database management and RF design can account for outdoor applications of small cells in the 3.5 GHz Band which would prevent interference with incumbents and all-comers. As discussed above, PCIA strongly encourages the Commission not to stifle innovation in this emerging technology.

IV. PCIA ENCOURAGES THE COMMISSION TO FULLY INVESTIGATE THE TWO-TIERED MODEL

PCIA urges the FCC to seriously examine the mechanics regarding a two-tiered federal and commercial allocation for the 3.5 GHz Band. In a two-tiered model, “Incumbent Access users would continue to be protected from harmful interference and the remaining available spectrum would be licensed under criteria similar to those applicable to the proposed Priority Access tier” with similar protective databases.³⁹ As CTIA explained, “Under such a two-tiered approach, geographic area licensing could give commercial licensees clearly defined rights and obligations in their licensed areas, allowing them to better plan and incorporate 3.5 GHz spectrum into their overall network deployment plans to increase capacity and support mobile broadband services provided in other bands.”⁴⁰

We agree with commenters that the two-tiered model would provide for high quality mobile broadband access for a greater number of consumers because of fewer restrictions to access 3.5 GHz spectrum.⁴¹ Additionally, we agree with AT&T that there may be greater

³⁸ UTC Comments at 5.

³⁹ *NPRM*, ¶ 84.

⁴⁰ CTIA Comments at 15-16.

⁴¹ CEA Comments at 5 (“The Commission should make its proposed intermediate ‘Priority Access’ tier available to all users in order to encourage robust use of the 3.5 GHz band. . . . By reserving some of the spectrum for this limited class of “mission critical” users, the

efficiency for hospitals, agencies, and utility companies to contract with a wireless provider rather than to install and manage individual facilities in the 3.5 GHz Band.⁴² By doing so, these entities could also avoid the obligations that come with licensing by contracting for 3.5 GHz services directly from commercial wireless partners,⁴³ and avoid inefficient, additional layers of network administration.

As a matter of procedure, PCIA is heartened the FCC has proffered Qualcomm's detailed Authorized Shared Access ("ASA") as a spectrum management tool in its *NPRM*.⁴⁴ Qualcomm's ASA framework is a future-oriented system that holds promise for use in the 3.5 GHz Band. PCIA commends the FCC for including the system in these early discussions.

V. WIRELESS OFFLOADING AND BACKHAUL IN THE 3.5 GHZ BAND SHOULD BE FULLY EXPLORED

PCIA supports utilizing the 3.5 GHz Band for offloading and non-line-of-site wireless backhaul. As users of wireless services ask more and more of networks in terms of lower latency and higher bandwidth, efficient network management becomes an increasingly important element of the equation. To that end, wireless backhaul and a number of wireless offloading techniques, including Wi-Fi, are already utilized throughout the United States. PCIA and other commenters note that the 3.5 GHz Band "holds promise as a vehicle to help address the nation's spectrum shortage if it is modified to be more broadly available for traffic offload."⁴⁵

Commission's proposal could significantly limit access by General Authorized Access ("GAA") users, creating uncertainty for GAA users and making the available spectrum less robust and reliable. Since the Priority Access spectrum would be limited to only a few categories of users, the band would likely be underutilized."); CTIA Comments at 15-16.

⁴² AT&T Comments at 9 n.24.

⁴³ *Id.*

⁴⁴ *NPRM*, ¶ 7; Qualcomm Comments at 4.

⁴⁵ Mobile Future Comments at 4.

However, PCIA agrees with TIA that the Commission “should consider—but not mandate—whether the spectrum might be usefully put to work as part of small cell strategy in which mobile traffic could be offloaded onto denser deployments of small cells.”⁴⁶ General mandates for any single application at this early stage of development in the 3.5 GHz Band is inappropriate as it may have the effect of prematurely chilling organic innovation in the space.

VI. THE FCC SHOULD INSTILL MARKET COMPETITION IN DATABASE MANAGEMENT, FREQUENCY COORDINATION, AND INTERFERENCE MITIGATION

If the FCC uses a database management system, PCIA supports a schema that leverages the positive effects of competition to increase efficiency and cost-savings for the management and maintenance the 3.5 GHz Band. A system that allows for multiple databases would prevent there being a single point of failure.⁴⁷ As the Commission found in examining the TV broadcast white spaces, multiple database operators will prevent monopoly control by a single administrator, incentivize operators to offer additional services beyond the minimum required by the rules, and help to ensure that database services are available on a fair and low (or no) cost basis.⁴⁸ Further, as Microsoft notes, the managers of the databases, “should have the ability to provide access to unlicensed devices opportunistically using a variety of spectrum bands.

⁴⁶ TIA Comments at 3.

⁴⁷ Comments of Comsearch, GN Docket No. 12-354, at 10 (filed Feb. 20, 2013) (“Comsearch Comments”) (suggesting that the SAS can “comprise a system of multiple databases”); Microsoft Comments at 12 (“To ensure this independence, there should be multiple commercial database managers, as in the white spaces arena.”).

⁴⁸ *In re* Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, *Second Report and Order and Memorandum Opinion and Order*, 23 FCC Rcd 16,807, ¶¶ 204, 221 (2008). *See also In re* Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, *Second Memorandum Opinion and Order*, 25 FCC Rcd 18,661, ¶ 104 (2010) (“*Second White Spaces MO&O*”).

Providing a single entity with total control over the interference database could lead to inefficiency, favoritism, and unnecessary costs.”⁴⁹

Through market forces, different vendors could compete on price and service, providing incentives for reduced transaction costs and more accurate database management and support. As Ericsson succinctly noted in its filing, “A commercial solution with multiple vendors allows for the lowest cost implementation by exploiting competitive pressure between vendors.”⁵⁰ These cost-savings would ultimately benefit the public and all users of the 3.5 GHz Band.

PCIA and Comsearch both believe that the (“Spectrum Access System”) SAS should be housed outside of the federal government.⁵¹ Just as multiple databases would allow for increased efficiencies and higher levels of service, a federally-designated manager would free the government from the difficult task of developing and operating a highly fluid information technology project and instead place it within the private market where firms could compete on quality, service, and price. The SAS could be managed by an existing industry association or a new organization of stakeholders for the purpose of developing, maintaining, and running the SAS.⁵²

Commercial entities should also be a part of the interference mitigation process. Competitive forces among private entities increases innovation and accelerates the interference resolution process, allows for cost savings to users and service providers in the 3.5 GHz Band, and relieves the FCC of administrative burdens.

⁴⁹ Microsoft Comments at 12.

⁵⁰ Ericsson Comments at 12.

⁵¹ Comsearch Comments at ii.

⁵² *Id.* at ii.

VII. CONCLUSION

For the foregoing reasons, PCIA urges the Commission to continue its important work in clearing spectrum for exclusive licensed use, but also to proceed with caution in forming regulations in a still evolving space. The Commission can further promote broadband deployment and spectrum utilization by streamlining its environmental and historic preservation regulations, reduce the proposed 3.5 GHz Band exclusion zones, and permit small cells in the Band to be used both indoors and out. Finally, the Commission should fully investigate the two-tiered access model which can be effectuated by a competitive, private-sector database management, frequency coordination, and interference mitigation service market.

Respectfully submitted,

PCIA–THE WIRELESS
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